

1.8 Local Government Projects

1.8.0 GENERAL

The requirements in this section define the programs, requirements, roles and responsibilities for the design of structures on local government federal-aid projects as outlined in 23 CFR and the FHWA/UDOT Stewardship and Oversight Agreement. They apply to the design of all structures, including bridges, box culverts, steel multi-plate pipe arches, retaining walls, and structural supports for signs, signals and luminaries.

1.8.1 ROLES AND RESPONSIBILITIES

A. FHWA

FHWA has the overall authority and responsibility for implementing and monitoring compliance with federal laws, regulations and executive orders. FHWA provides oversight to all federal-aid highway projects to ensure that they are designed and constructed in accordance with all applicable federal laws and regulations. In this context *oversight* is defined as follows: Monitor activities and exercise controls, as necessary, within areas of responsibility to ensure that all federal-aid projects comply with applicable laws, regulations, directives, and standards as defined.

FHWA has approval authority over NHS design standards. To fulfill that responsibility, FHWA approves UDOT's collective design standards, specifications and standard drawings that apply to NHS projects.

On all local agency federal-aid projects, FHWA delegates their oversight responsibilities to UDOT. However certain aspects of these projects may require FHWA approval.

B. UDOT

In accordance with the FHWA/UDOT Stewardship and Oversight Agreement, UDOT administers the stewardship and oversight responsibilities for designated federal-aid projects, when so directed by FHWA. On state-administered federal-aid projects, UDOT is responsible to FHWA for the proper administration and oversight in accordance with all federal laws, regulations and standards.

UDOT agrees to implement policies, procedures, manuals, standards and adequate staffing to ensure that satisfactory project monitoring techniques and controls are carried out in its delegated responsibilities of project administration.

UDOT verifies that local agency federal-aid projects comply with federal laws, regulations, FHWA directives and standards on federal-aid projects.

UDOT approves FHWA Design standards, and policies as noted in 23 CFR 625.4. for use on all non-NHS federal-aid projects. UDOT-approved statewide standards apply to NHS federal-aid projects. Standards and procedures used on federal-aid projects by local agencies must be approved by UDOT.

UDOT provides FHWA design oversight responsibility (reviewing and approving) for all State Administered federal-aid projects. UDOT will maintain project records to support all activities, including the estimated cost of construction and approval actions. These records will be retained and available for review for a period of three years after payment of the final voucher.

The UDOT Design Engineer assigned to the project will verify that project structures comply with FHWA requirements and guidelines as follows:

1. Complies with the appropriate design standards and requirements.
2. Cost is not excessive. Ensures that federal dollars are used wisely, efficiently and in accordance with federal laws and regulations.
3. UDOT verifies Quality Control / Quality Assurance (QC/QA) compliance.
4. Maintains complete and accurate project oversight documentation.
5. Available as a resource to construction oversight personnel to evaluate acceptability of field design changes, resolve structures-related construction issues, and project acceptance, when requested.

C. Local Agencies

Local agencies are responsible to procure design consultants, through UDOT Consultant Services, who are qualified to complete the design and construction activities for the structure type. Local agencies are responsible for the scope, schedule and budget of their respective projects follow federal processes and requirements during design and construction.

D. Design Consultant

The Design Consultant is responsible for the following:

1. The design of all structures on the project. Seals plan-set (with Utah PE Stamp), signs and dates all plans, specifications, calculations, and the QC/QA Certification, thus certifying that the design and detailing comply with all design standards, criteria and other requirements.
2. The quality, accuracy and completeness of all design and construction documents prepared for federal-aid projects. UDOT and FHWA reviews do not relieve the designer of any responsibility for the accuracy and completeness of the design. The Design Consultant ensures that the design documents are completed in compliance with the UDOT Structures Design Quality Plan or an approved alternate quality plan.
3. During the course of design the Design Consultant documents all applicable standards used to make design decisions. This document is to be included in the project files and may be reviewed by UDOT as needed.

4. During the course of the construction contract, the design consultant will review and approve all fabrication shop drawings, shoring, and erection drawings to ensure that they satisfy the intent of the design and all safety requirements.
5. Maintain complete and accurate project records.

1.8.2 DESIGN REQUIREMENTS

The following design requirements apply to all federal aid projects regardless of funding sources. FHWA approval is required for all UDOT standard plans and standard specifications intended for use on federal-aid construction projects on the NHS.

A. General Requirements

Non-NHS federal aid local government projects: Designed, constructed, operated, maintained in accordance with State laws and FHWA Design standards, and policies as noted in 23 CFR 625.4.

NHS federal aid local government projects: Design all structures on the National Highway System (regardless of funding source) to comply with UDOT design and construction standards and criteria.

B. Design Consultant

Design all bridges, retaining walls, culverts, and other standard structures to the most current version of the standards noted in Section 1.8.2.A noted above.

C. Seismic Design

UDOT designs all new bridges for a seismic event that corresponds to a 10% probability of exceedence in 250 years. This level of earthquake approximates the maximum credible earthquake that the structure will be subjected to during its 75-year design life. The design seismic event in the AASHTO design specifications corresponds to a 10% probability of exceedence in 50 years. There is a significant difference between these two design earthquakes.

UDOT's decision to design to the higher earthquake is based upon the long return rate between earthquakes in Utah and where we are in the cycle. It is predicted that a major earthquake will occur along the Wasatch fault at any time. The AASHTO bridge design specification reduces the magnitude of earthquake based upon the probability of a major earthquake occurring during the bridge design life. It does not take into consideration that a major earthquake is due in Utah during the design life of the bridge. Therefore, the AASHTO design seismic event does not reflect the magnitude of earthquake that is expected to occur during the design life of a structure in Utah.

Local government owners are not required to design their bridges to the higher seismic event used by UDOT in their bridge designs. However, local government owners should seriously evaluate each new bridge to determine its importance to their highway system and whether it makes sense to design it to the higher-level earthquake.

D. Design Documents

Prepare all design documents in English units and in accordance with the following:

1. Plans

Comply with UDOT CADD standards, UDOT Structures detailing requirements, and plan standards noted in this Manual.

2. Specifications & Estimates

Prepare all specifications and engineers estimates in accordance with the UDOT Design Process and this Manual. Standard UDOT formatting applies.

3. Design Calculations

Prepare and file all final design calculations and independent review calculations as noted in this Manual.

4. Design Reports

The following reports are required for the project files, and may be reviewed and commented on by UDOT if requested by the Local Government. The following reports are to be prepared in accordance with Section 3.7 of this Manual.

- a. Bridge Type Selection
- b. Bridge Seismic Strategy
- c. Bridge Load Rating
- d. Bridge Maintenance Plan

1.8.3 DESIGN PROCEDURES

A. General

Follow the UDOT Design Process noted in 1.8.2.A.

B. Design Quality

The design of all structures on federal-aid projects must be prepared in accordance with the UDOT Structures Design Quality Plan or an alternate quality plan approved by the UDOT Deputy Bridge Engineer for Design. Approval of an alternate project quality plan is required prior to beginning the design. Completion of design and detailing checks are required before submitting the design to UDOT for review. By completing the Design Quality Certification Forms, the designer and checkers certify that the design documents of all structures comply with the project design criteria and all quality requirements. UDOT may audit the quality documentation at any time.

C. Design Submittals for UDOT Review and Approval

UDOT participation in the following reviews is encouraged on local government structure projects. **The Final Design Check or PS&E review is the only review where a representative(s) from the UDOT structures division is required to attend.** UDOT Structures input and involvement is encouraged during report preparation and structure design and reviews to prevent the possibility of major rework after the Final Design Check.

1. Situation and Layout Review
2. 60% Review
3. CADD Standards Check
4. Final Design Check
5. Final Design QA Review

D. Project Records

The Local Government is to maintain all project design records for three years after the project completion. UDOT may audit the project records at any time.